

Remarks

Entry of the amendments, reconsideration of the application, as amended, and allowance of all pending claims are respectfully requested. Claims 1-27 remain pending.

The independent claims have been amended to more particularly recite applicants' invention. Specifically, the independent claims have been amended to indicate that the connecting is performed directly by the client. Support for this amendment can be found throughout the specification (e.g., FIG. 8, p. 15, lines 26-27 and p. 16, lines 1-25). For example, on p. 15, lines 26-27 through p. 16, lines 1-3, the specification describes that a client library routes a request from the client to the server and this request is issued from a client application thread. As a further example, on p. 16, lines 19-20, it states: "...the client library, which is running on the application thread...". Thus, the client library is part of the client in that it runs on the client thread and it enables the client to directly connect to the server. Therefore, no new matter is added.

In the Office Action dated April 23, 2003, claims 1-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Ben-Shachar et al. (U.S. Patent No. 6,209,018 B1). Applicants respectfully, but most strenuously, traverse this rejection for the reasons herein.

As one aspect of applicants' invention, applicants provide a lightweight connection management protocol that enables a client to connect to a server without using intermediaries and without having a single point of failure. For instance, an automatic reconnection procedure is provided which enables the client of a cluster computing environment that has an unacceptable connection with one server of a group of replicated servers to be reconnected with another server of the group. This reconnection does not require heavy communications protocol for the server.

In one particular example, applicants claim a method of managing connections between clients and servers of a distributed computing environment (e.g., independent claim 1). The method includes, for instance, determining, by a client of the distributed computing environment, that a server coupled to the client, via a communications protocol that lacks individualized time-outs for individual components of the distributed computing environment, is unavailable to process requests for the client, wherein the server is a member of a group of a plurality of

replicated servers; and directly connecting by the client the client to another replicated server of the group, wherein servers of the group lack knowledge of application-level information of a communication session of the client. Thus, in applicants' claimed invention, the client directly connects itself to another replicated server of a group of replicated servers. There are no intermediaries between the client and server to perform the determining and the connection. Therefore, the protocol is lightweight, but due to replication still avoids a single point of failure.

In sharp contrast to applicants' claimed invention, Ben-Shachar uses intermediaries to connect to a server, rather than allowing the client to perform the connection. This is described throughout Ben-Shachar. For example, in FIGs. 3 and 29, it is shown that service locators are used to locate a service on a given server. Further, Col. 28, lines 59-65, describe the use of the service locator to get to a server. Yet further, in Col. 31, lines 12-13, it states: "If not, the service proxy rebinds to another service locator...". Such description of a service locator being used to connect a client to a server is prevalent throughout Ben-Schachar.


Applicants, on the other hand, recite connecting to a server directly by the client. For example, applicants use a client library and a request broker of the library (see FIG. 8), which execute on the client thread, to perform the connections. Thus, the client is directly responsible for the connecting. Since it is the client that is performing the connecting and not an intermediary, the reconnection protocol is more lightweight than that provided by Ben-Shachar. Further, although a lightweight protocol is being provided, a single point of failure is still avoided.

Since Ben-Schachar explicitly teaches the use of intermediaries and applicants recite directly connecting by the client, applicants respectfully submit that Ben-Shachar does not describe, teach or suggest applicants' claimed invention. Instead, Ben-Shachar teaches a very different technique. Thus, applicants respectfully request an indication of allowability for claim 1, as well as the other independent claims.

The dependent claims are patentable for the same reasons as the independent claims, as well as for their own additional features. Therefore, applicants respectfully request an indication of allowability for all pending claims

Should the Examiner wish to discuss this case with applicants' attorney, he is invited to call the undersigned at the below listed number.

Respectfully submitted,



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